

SECTION 16191 SUPPORTING DEVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and apply to this Section.

1.2 SUMMARY:

- A. This section includes designing, sizing, calculating, and providing the following supporting devices:
 - 1. Conduit supports.
 - 2. Equipment supports.
 - 3. Fastening hardware.
- B. Related Sections: The following sections contain requirements that relate to this section:
 - 1. Division 3, Concrete.
 - 2. Division 5, Structural Steel.
 - 3. Division 18, General Welding Requirements.
 - 4. Section 16111, Conduit and Fittings.

1.3 REFERENCES

- A. National Fire Protection Association (NFPA)
 - 1. NFPA 70 – 1999, National Electrical Code (NEC)

1.4 SUBMITTALS

- A. General: Submit each item in this article according to the conditions of the contract and supplementary conditions.
- B. Design all supporting systems using calculations based on total system weight and attachment means. Submit one calculation as typical for each case designed.
- C. Products furnished from listed manufacturers are pre-approved but still require submittal.
- D. Submit proposed substitutions for approval in accordance with General and Supplementary Conditions.

PART 2 - PRODUCTS

2.1 MATERIAL

- A. Support Channel: Galvanized or painted steel.
- B. Hardware: Corrosion resistant.
- C. All-Thread Rod: Cadmium plated or hot dipped galvanized, size as calculated for the loading applied.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Fabricate conduit support hangers from angle iron, channel iron, "Unistrut," or galvanized rods.
- B. Space conduit hangers in accordance with Sect. 16111, Part 3. National Electrical Code, and Component Manufacturer's Recommendations.
- C. Fabricate equipment racks from P-1000, "Unistrut," utilizing bolted or off-site welded construction.
- D. Mount equipment to racks with hexagon head bolts, spring nuts, and lock washers.
- E. Fasten hanger rods, conduit clamps, and outlet and junction boxes to building structure using expansion anchors. Do not use spring steel clips and clamps.
- F. Use toggle bolts or hollow wall fasteners in hollow masonry, plaster, or gypsum board partitions and walls; expansion anchors or preset inserts in solid masonry walls; self-drilling anchors or expansion anchors on concrete surfaces; and sheet metal screws in sheet metal studs.
- G. Do not fasten supports directly to piping, ductwork, mechanical equipment, or other conduit. Common use of hanger systems is acceptable if the total composite load is used in calculating the strength required for the support system.
- H. Do not use powder-actuated anchors.
- I. Do not drill structural steel members unless authorized in writing by the structural engineer of record.
- J. In wet locations, and where shown, install freestanding electrical equipment on concrete pads.
- K. Install surface-mounted cabinets and panelboards with minimum of four anchors. Provide steel channel supports to stand cabinet 1 in. off wall.
- L. Bridge studs top and bottom with channels to support flush-mounted cabinets and panelboards in stud walls.

END OF SECTION 16191